Augsburg Honors Review

Volume 8 Article 14

2015

The Observed Effects of Recreation Jamstix™ use on Mood: a Pilot Study

Destiny Henn
Augsburg College

The Observed Effects of Recreation Jamstix™ Use on Mood: A Pilot Study

Destiny Henn

The purpose of this pilot study was to investigate the changes in mood before and after a one time improvisation with a Jamstik™ in order to understand if and how the experience will produce a statistically significant method for quantitatively addressing mood in music therapy. Participants (N = 15) were a convenience sample of male and female college students. Using the Quick Mood Scale (Woodruffe-Peacock, Turnbull, Johnson, Elahi, & Preston, 1998), this research compared pre- and post-test measures in participants' moods after a 15 minute improvisation session with the Jamstik™ while the researcher accompanied on a drum. Results indicated immediate and significant positive changes in four out of the six mood factors after a single session: (a) wide awake/drowsy, (b) relaxed/anxious, (c) cheerful/depressed, and (d) friendly/aggressive. From the results of this study, it can be concluded that the Jamstik™ can be used as a tool of improvisation to bring an immediate, positive impact on mood. Limitations and suggestions for future research are provided.

Introduction:

The belief that music influences mood is not a new concept, the idea actually dates back to the ancient Greek philosopher Pythagoras (571 BC - 495 BC), whose ideas were also built upon by Plato and Aristotle. "Some of [the modes] make men sad and grave, like the so called Mixolydian; others enfeeble the mind, like the relaxed modes; another, again, produces a moderate or settled temper, which appears to be the peculiar effect of the Dorian; and the Phrygian inspires enthusiasm," Aristotle explains in *Politics* (Musical mode, 2007). Although this is an age old idea, there is little quantitative research to support this claim.

Music therapy is an increasingly popular tool in various settings, however, there is limited research about the differing methods used for mood regulation. Many music therapists design interventions to increase skills in decision making, problem solving, coping skills, stress management, medication management, symptom management, communication, leisure skills, and quality of life; if mood regulation is taken into more serious consideration, many of these goals will be reached more effectively. Affecting a client's mood can help with their willingness to attend and participate in other therapeutic programs at their facility, increase communication, and increase compliance to taking medications or following other treatment plans (Silverman & Rosenow, 2013).

Psychiatric clients are one of many populations that experience positive effects on mood after a music therapy intervention. Additionally, post-stroke and neurologically impaired clients have also benefited significantly from mood vectoring during rehabilitation (Kim et. al, 2011). This pilot study will test college students' change in mood through the Quick Mood Scale survey, after a one time intervention with a Jamstik™; this method will later be taken to a clinical psychiatric setting.

In this paper, I will present a set of terms related to the study, and then, through the literature review, I will present relevant studies to understanding the therapeutic effects of music on mood. This study tested individuals separately, as they engaged in the process of active music making and improvisation through an innovative new instrument that combines this age's expanding technology and a timeless instrument, the guitar. The implications of this study's findings will be expanded upon in the conclusion.

Definition of Terms:

Jamstik™: "The Jamstik™ is a MIDI guitar with real strings. It allows you to fret and strum like a real guitar and you can even roll up the octaves by pressing a button on the device. It connects to iOS devices and outputs a MIDI signal that can be used in almost any audio program including Garageband and Sunrizer" (Jamstik™ FAQ, 2014).

Profile of Mood States (POMS): This survey has 65 mood adjectives that correlate to six major areas: tension/anxiety, depression/dejection, anger/hostility,

fatigue/inertia, vigor/activity, and confusion/bewilderment. Each adjective can be rated on a 1-5 scale, and then fit into the correlating category (Scoring for POMS, 2013).

Quick Mood Scale: A pre- and post-test that was designed to evaluate change in mood in an immediate manner. This scale assesses depression, aggression, anxiety, drowsiness, confusion, and lack of coordination on a scale of 1-5. (Silverman & Rosenow, 2013).

Purpose of Study:

The purpose of this study was to investigate the changes in mood, using the Quick Mood Scale, before and after a one time intervention with a Jamstik™, in order to understand if and how the experience produces a clinically and statistically significant method for quantitatively addressing mood disorders. If there is a significant increase in mood states the Jamstik™ will be considered as a clinically useful tool for music therapists.

Does recreational improvisation with a Jamstik™ lead to a positive increase in perceived mood? Will the Jamstik™ prove to be an effective tool for music therapists?

Related Literature:

Music therapy has demonstrated several methods of clinical interventions that improve mood in various populations, although the quantitative literature in this area is preliminary. Individuals with serious mental health disorders are strong candidates for mood regulation, and have benefited significantly from music therapy, alongside standard care treatments. Music therapy can relieve depression, anxiety, general symptoms, and positively affect the global state overall (Gold, Solli, Krüger, & Lie, 2009).

A 2013 study conducted by Dr. Michael J. Silverman, a professor from the University of Minnesota and leading researcher in the field, and Sara Rosenow, tests the immediate effects of music therapy on mood in an acute psychiatric setting. This type of research was unprecedented, and served to fill a gap in the literature of quantitative studies with music therapy and mood (Silverman & Rosenow, 2013). This research used the Quick Mood Scale, a pre- and post-test that was designed to evaluate change in mood in an immediate manner. This scale assesses depression, aggression, anxiety, drowsiness, confusion, and lack of coordination. Silverman chose to utilize the Quick Mood Scale for its practicality; the POMS scale was known to be more difficult to fill out. The results presented a significant positive change in wide awake/drowsy, relaxed/anxious, cheerful/depressed, and friendly/aggressive. The only area that did not improve was clear-headed/confused, but Dr. Silverman suggests that this may be due to medication,

something that music therapy may not be able to contradict. There were no significant differences between the different types of interventions attempted, but each of them had a positive effect on mood (Silverman & Rosenow, 2013). The interventions were musical games in a group setting. This proposed study will examine the effects of a created musical experience with each participant taking part individually.

Similarly, a study of mood states in neurologic patients documents developmental research for this population as well. This study conducted a single subject design, and measured using the POMS test. There were significant benefit in anxiety, energy, and agreeable mood states; the limitations of the other topics are considered to be results of methodological flaws. In agreement with Dr. Silverman, Magee states that the POMS (bipolar form) questionnaire was too difficult (Magee & Davidson, 2002).

A related study tested music therapy on anxiety, depression, and quality of life in older adults. Twelve participants with depression and anxiety took part in a 14-week study, where the last four weeks were post-intervention. This study used live and recorded music as an aid for music improvisation to help expression related to the client's illness. The results concluded that there was an immediate impact on the anxiety and depression scores; the changes were smaller during the intervention period, but improvement was maintained after the post-intervention analysis (Castelino, Fisher, Hoskyns, Zeng, & Waite, 2012).

Group singing may also be an intervention that benefits mood states. Participants were divided into two groups, singing (experimental) and listening to singing (control). During a half an hour session, the individuals were tested with the POMS questionnaire immediately before and after, and again after one week. Both groups indicated positive changes in mood immediately after the session. Some effects were evident at the one week follow-up (Unwin, Kenny, & Davis, 2006).

A music listening study conducted in 2011 tested the effects on mood of art production (drawing) and art sorting with and without music listening. Self-report measures of negative mood were evident at the beginning and ten minutes into the intervention. The two music listening conditions showed greater mood enhancement compared to the two non-music conditions, but there were no significant effects between the differing art conditions (Boothby & Robbins, 2011).

Another study that Dr. Silverman collaborated on with Renée Mungas, also used the Quick Mood Scale to test the mood states of a group of students before and after a drumming intervention. This study tested the benefits of active music making instead of passive music listening or receptive music-based interventions. Similar to the results of his previous study, there was a statistically significant difference in scores in the categories of wide awake/drowsy, relaxed/anxious, cheerful/depressed, friendly/aggressive, and even clearheaded/confused

(Mungas & Silverman, 2014). This was a pilot study conducted on a group of college aged participants, which can then be expanded on in a clinical setting. This current proposal acted as a similar type of experiment.

The importance of this study lies in music therapy's strong need to develop quantitative research literature, and introducing new adaptive and affordable ways in which mood vectoring can be executed and measured. The study tested the clinical use of the Jamstik™ as a therapeutic tool.

Method:

The participants for this study were male and female students from a small urban college in Minnesota; the convenience sample was 15 participants. There was not any control group due to the small sample size, but the pre- and post-test acted as a control, showing the changes in mood due to the session. The materials necessary for the study were a Jamstik™ ($299.99) and an iPhone. Other materials included the handout surveys that the participants took and a drum for the facilitator. The instrument used to measure mood before and after the intervention was the Quick Mood Scale, which measures depression, aggression, anxiety, drowsiness, confusion, and lack of coordination on a spectrum of 1-5.

This allowed the participant to acknowledge what they related to immediately after the intervention, instead of sitting and evaluating whether or not they were feeling every individual mood in the POMS. At the end of the study they took the assessment again.

In Silverman's study, the most significant mood changes occurred with awake/drowsy, relaxed/anxious, cheerful/depressed, and friendly/aggressive (Silverman & Rosenow, 2013).

In this one time meeting, the participants individually spent 15 minutes with the Jamstik™; some were more proficient on guitar than others, but all of the participants had a basic understanding and knowledge of chords on the guitar. The Jamstik™ was hooked up to an iPhone, which was plugged into speakers. The facilitator had a drum and played music with the participant, letting him or her lead the direction of the improvisation. The reason that the facilitator was using a percussive instrument instead of a melodic was so that the participant has no melodic structure that they might feel pressured to stay in. There was more room for the individual to improvise and be creative if they were the only melodic participant. The apps allowed them to play with unique scales and keys. The app that the participants used most was Garageband, in which they can choose between many instrument sounds and many guitar tones. The apps that Jamstik™ created were also demonstrated. These apps were more structured towards instructional guitar playing and functional skills. All apps were available for the participant to choose between.

The data was analyzed by averaging the scores before and after the intervention in each mood category. A paired samples t-test will also be used to determine statistical significance.

Results:

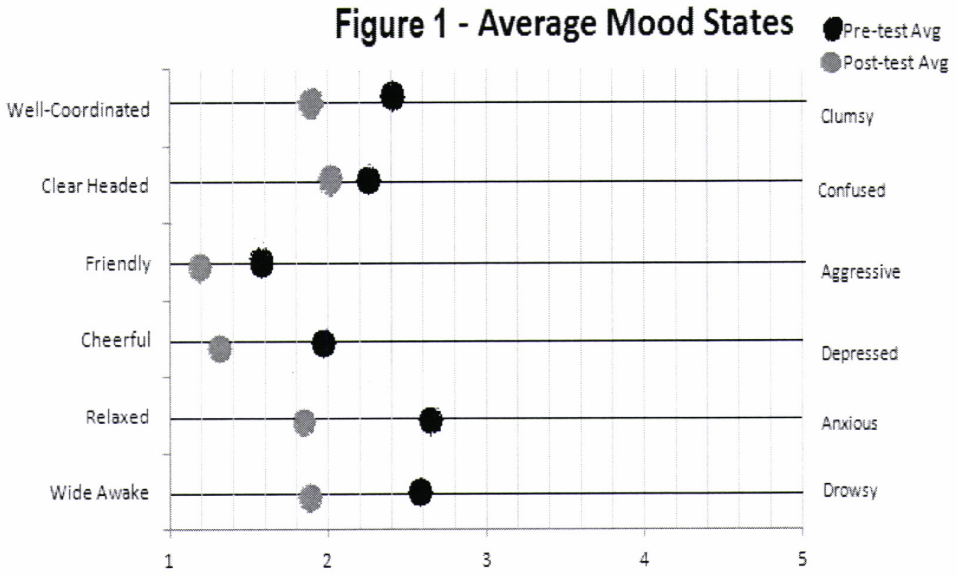

Table 3 - Descriptive Statistics				
Mood states	P value	Pre-average	Post-average	Average difference
* Wide Awake (1) / Drowsy (5)	0.013	2.60	1.90	0.70
* Relaxed (1) / Anxious (5)	0.003	2.70	1.86	0.84
* Cheerful (1) / Depressed (5)	0.013	2.00	1.36	0.64
* Friendly (1) / Aggressive (5)	0.028	1.64	1.21	0.43
Clear-headed (1) / Confused (5)	0.336	2.29	2.07	0.22
Well-coordinated (1) / Clumsy (5)	0.089	2.43	1.93	0.50
*indicates statistical significance ($p \leq .05$)				

A convenience sample of 15 students was tested individually on current mood states through an improvisatory experience with a Jamstik™. Each student took the Quick Mood Scale survey before and after the intervention. Six catego-

ries—wide awake/drowsy, relaxed/anxious, cheerful/depressed, friendly/aggressive, clearheaded/confused, and well-coordinated/clumsy—were each tested on a spectrum of 1-5, 1 being the more favorable state.

A paired samples t-test was executed on this repeated measures experiment, to show which categories have a significant correlation ($p \leq .05$). This margin of significance was chosen in order to be consistent with the majority of scientific research studies. The test revealed that wide awake (0.013), relaxed (0.003), cheerful (0.013), and friendly (0.028) were mood states that produced a statistically important increase. Clearheaded (0.336) and well-coordinated (0.089) were not significant. Figure 3 gives a visual of which mood increases are significant, while also showing the pre- and post-test averages in each category.

Displayed in figure 1, the average score for the pre-tests were 2.6 (wide awake), 2.7 (relaxed), 2 (cheerful), 1.64 (friendly), 2.29 (clearheaded), and 2.43 (well-coordinated). The post-test averages expressed lower values of 1.9 (wide awake), 1.86 (relaxed), 1.36 (cheerful), 1.21 (friendly), 2.07 (clearheaded), and 1.93 (well-coordinated). Results were shown on a spectrum, in which the ideal number for each category was 1, and the maximum possible was 5.

The post-test averages showed a positive mood increase in every category, but the strongest change was in the relaxed/anxious category which showed an overall average difference of 0.84 and p value of 0.003.

Figure 2 demonstrates that the shape of the trend of mood states for the class remained very consistent, but became more positive overall. The fact that they show a visually mirrored pattern shows that the experience globally increased mood. The moods that were increased the most were relaxed, wide awake, cheerful, and friendly. The non-significant differences were between clearheaded/confused and well-coordinated/clumsy, although the graph still points to a positive change in mood for these areas.

Discussion:

The findings of this study suggest that the use of the Jamstik™ as a tool of improvisation supports positive mood changes according to the Quick Mood Scale. The results of a paired samples t-test showed significance in the categories of wide awake/drowsy, relaxed/anxious, cheerful/depressed, and friendly/aggressive. Mood improved globally, which was demonstrated visually through the comparison of average scores in the pre- and post-assessments on mood.

This study produced statistically significant changes in the four same categories as seen in Dr. Silverman's 2007 study on mood. While this study was conducted on college students, it mirrored the results of his clinical findings while also testing a different method of recreational music therapy.

As explained previously, improvisational music therapy has been shown to positively increase scores in anxiety and depression in Castelino's study in 2012. Another study by Dr. Silverman and Ms. Mungas also found support for mood enhancement with college aged participants in active music improvisation, during a one time drumming intervention in 2014.

This study shows that the Jamstik™ can be used as a therapeutic tool for musical improvisation, which can ultimately improve overall global mood.

A limitation to this study is the bias of participants knowing what the study was about prior to participating. Each participant except for one was a music student, which could have also contributed to the positive response to the improvisation. A future study could compare mood changes between musicians and non-musicians. Another limitation is the lack of a control group. Due to the already small sample size in the experiment, the pre- and post-test was aimed to compensate for the change in mood. A future study that has a larger sample size could have a control group that participates in music listening, or a non-musical activity.

Outside factors that could have contributed to the increase of mood besides the improvisation might be the excused time from class, or the excitement of trying out a new instrument for the first time. The latter factor could be a good reason to use the Jamstik™ in a clinical setting. An instrument that is both practical and technological is a magnetic product to younger generations.

Although this mood study only examines one possible application of the Jamstik™, the study concludes objectively that there is a positive effect on mood through using the product to improvise musically. Ideally, the design of being technological and musical could lend itself well to working with an autistic population. Possible goals that could be tested on the device are pain alleviation, fine motor skills, hand/eye coordination, promotion of physical rehabilitation, and even cognitive functions such as understanding cause and effect between the fingers and the sounds. Future research is recommended to explore the additional clinical uses of the Jamstik™.

Conclusion:

This study on immediate effects of improvisation with a Jamstik™ showed a statistically significant positive increase ($p \leq .05$) in four mood states, wide awake/drowsy (0.013), relaxed/anxious (0.003), cheerful/depressed (0.013), and friendly/aggressive (0.028). This data expresses that the Jamstik™ operated as an adequate tool for improvisation in the given intervention. The Jamstik™ shows potential to be an asset to therapists in a variety of interventions. In addition to the existing ways of using the Jamstik™ adaptively, Zivix, the company that makes the instrument has shown interest in designing apps specifically for therapeutic goals.

References:

Boothby, D.M., & Robbins, S.J. (2011). The effects of music listening and art production on negative mood: A randomized, controlled trial. *The Arts in Psychotherapy,* 204-208.

Castelino, A., Fisher, M., Hoskyns, S., Zeng, I., & Waite, A. (2012). The effect of group music therapy on anxiety, depression and quality of life in older adults with psychiatric disorders. *Australasian Psychiatry,* 506-507.

Dileo, C. (2000). *Ethical thinking in music therapy*. Cherry Hill, NJ: Jeffrey Books.

Gold, C., Solli, H., Krüger, V., Lie, S.A. (2009). Dose–response relationship in music therapy for people with serious mental disorders: Systematic review and meta-analysis. *Clinical Psychology Review*, 29, 193–207.

Jamstik FAQ. (2014). Retrieved October 1, 2014, from http://Jamstik.com/

Kim DS, Park YG, Choi JH, Im SH, Jung KJ, Cha YA, Jung CO, Yoon YH: Effects of music therapy on mood in stroke patients. Yonsei Med J 2011, 52(6), 977-981.

Magee, W. L., & Davidson, J. W. (2002). The effect of music therapy on mood states in neurological patients: A pilot study. *Journal of Music Therapy, 39*(1), 20-29.

Mungas, R., & Silverman, M. (2014). Immediate effects of group-based wellness drumming on affective states in university students. *The Arts in Psychotherapy, 41*(3), 287-292.

Musical mode. (2007). Retrieved November 15, 2014, from http://www.newworldencyclopedia.org/entry/Musical_mode

Scoring for POMS. (2013). Retrieved October 1, 2014, from http://www.brianmac.co.uk/pomscoring.htm

Shatin, L (1970). Alteration of mood via music: A study of the vectoring effect. *Journal of Psychology,* 81-86.

Silverman, M., & Rosenow, S. (2013). Immediate quantitative effects of recreational music therapy on mood and perceived helpfulness in acute psychiatric inpatients: An exploratory investigation. *The Arts in Psychotherapy, 41(3)*, 269-274.

Unwin, M., Kenny, D., & Davis, P. (2006). The Effects Of Group Singing On Mood. *Psychology of Music,* 175-185.

Woodruffe-Peacock, C., Turnbull, G.M., Johnson, M.A., Elahi, N., Preston, G.C. (1998). The quick mood scale: Development of a simple mood assessment scale for clinical pharmacology studies. *Human Psychopharmacology* 53-58.